## **Supporting Information**

## Synthesis and performance of hollow LiNi<sub>0.5</sub>Mn<sub>1.5</sub>O<sub>4</sub> with different

## particle sizes for lithium-ion batteries

Yuan Xue, <sup>a</sup> Zhen-Bo Wang, <sup>a, \*</sup> Li-Li Zheng <sup>a, b</sup>, Fu-Da Yu <sup>a, b</sup>, Bao-Sheng Liu <sup>a</sup>, Yin

Zhang, <sup>a</sup> Yu-Xiang Zhou <sup>b</sup>

<sup>a</sup> School of Chemical Engineering and Technology, Harbin Institute of

Technology, No. 92 West-Da Zhi Street, Harbin, 150001 China

<sup>b</sup> School of Science, Harbin Institute of Technology, No.92 West-Da Zhi Street,

Harbin, 150001 China

\* Corresponding author. Tel.: +86-451-86417853; Fax: +86-451-86418616.

Email: wangzhb@hit.edu.cn (Z.B. Wang)





Figure S1. SEM micrographs of mixture of  $MnCO_3$ -4 before calcined (a), when temperatures reach 850 °C (b) and after calcined at 850 °C for 1, 2, 4, 6, 10 hours (c~g).



Figure S2. SEM micrographs of product obtained by LiOH and  $MnCO_3$ -4 without  $Ni(NO_3)_2$ .



Figure S3. Cycling performance of four  $LiNi_{0.5}Mn_{1.5}O_4$  samples at rates of 1 C, 2 C and 5 C.